REMARKS

The applicants have carefully reviewed the final office action mailed on September 22, 2005. In response, the applicants have amended independent claims 1 and 9 and canceled claims 6, 10 and 15. Thus, claim 1-5, 7-9, 11-14, and 16 are respectfully submitted for reconsideration and passage to allowance.

In the final office action, the examiner rejected claims 1, 5 and 9 under 35 U.S.C. §103 over U.S. Patent No. 5,742,478 to Wu (hereinafter "Wu") in view of U.S. Patent No. 5,287,244 to Hileman et al. (hereinafter "Hileman").

Independent claims 1 and 9 have been amended to clearly recite that a printed circuit board includes at least one component on a first side of the printed circuit board and at least one optical component on a second side of the printed circuit board. A heat sink is in thermal contact with the optical component on the second side of the printed circuit board and the housing to conduct heat from the optical component to the housing. In addition, a thermal plate is coupled between the housing and the printed circuit board, the thermal plate being in thermal conductive contact with the at least one component on the first side of the printed circuit board and the housing according to an embodiment of the present invention.

Wu is generally directed to heat removal a power converter using air flow and fans. Wu teaches a printed circuit board that is suspended within a housing that is cooled by air blown by a fan over a heat conductor 41. (See Figures 2, 2A and 3; Column 3, lines 14-29). A conductive plate is in contact with the housing and forms ventilation channels for the printed circuit board. Wu does not teach or suggest a air flow perforations over more than half of at least one surface, a printed circuit board with a component on a first and a component on a second side of the printed circuit board, or a heat sink in thermal contact with the component on the second side of the

printed circuit board and the housing to conduct heat from the optical component to the housing according to independent claim 1. Moreover, Wu does not teach or suggest a thermal plate that is in thermally conductive "contact" with a housing and a component as required by independent claims 1 and 9. Rather, the conductive plate of Wu is suspended and is not in contact with any components on the printed circuit board, but forms ventilation channels. Claim 9 recites substantially the same limitations as claim 1. Accordingly, Wu does not teach or suggest all of the elements of independent claims 1 and 9 and therefore does not teach or suggest these claim.

Hileman does not cure the deficiencies of Wu. Hileman merely teaches the use of a housing with perforations to allow the passage of air through the housing and heat sinks to dissipate heat from a power supply. Hileman fails to disclose a printed circuit board that includes at least one component on a first side of the printed circuit board and at least one optical component on a second side of the printed circuit board, a heat sink that is in thermal contact with the optical component on the second side of the printed circuit board and the housing to conduct heat from the optical component to the housing and a thermal plate is coupled between the housing and the printed circuit board, the thermal plate being in thermal conductive "contact" with the at least one component on the first side of the printed circuit board and the housing. Accordingly, the combination of Wu and Hileman fail to teach or suggest alone or in combination the elements of independent claims 1 and 9.

In the final office action, the examiner rejected claims 6, 10 and 15 under 35 U.S.C. §103 over U.S. Patent No. 5,742,478 to Wu (hereinafter "Wu") in view of U.S. Patent No. 5,287,244 to Hileman et al. (hereinafter "Hileman") and in further view of U.S. Patent No. 6,788,540 Kruger.

Kruger does not cure the deficiencies of Wu and Hileman. Kruger merely teaches

separate heat dissipating element acting as a heat sink may be placed over top of the cage in contact with the transceiver module. Pins extend downwardly from the base for securing the cage to the host circuit board. Kruger does not teach a configuration as recited in claims 1 and 9. Specifically, Kruger fails to disclose a printed circuit board that includes at least one component on a first side of the printed circuit board and at least one optical component on a second side of the printed circuit board, a heat sink that is in thermal contact with the optical component on the second side of the printed circuit board (having a component on a first side of the printed circuit board) and the housing to conduct heat from the optical component to the housing and a thermal plate is coupled between the housing and the printed circuit board, the thermal plate being in thermal conductive "contact" with the at least one component on the first side of the printed circuit board and the housing. The combination of Wu, Hileman and Kruger fails to teach dissipating heat from components on two sides of a printed circuit board using a heat sink on one side and a thermal plate on the other side. Accordingly, the combination of Wu, Hileman and Kruger fail to teach or suggest alone or in combination the elements of independent claims 1 and 9. Accordingly, the Examiner has not made out a prima facie case of obviousness.

For the foregoing reasons, reconsideration and allowance of the pending claims is respectfully requested. If the Examiner has any questions, the Examiner is encouraged to contact the undersigned attorney.

In view of the above, it is respectfully submitted that the present invention is allowable over the references relied upon in the Office Action. Accordingly, favorable reconsideration of this case and early issuance of the Notice of Allowance are respectfully requested. Should the Examiner feel further communication would facilitate prosecution, he is urged to call the undersigned at the phone number provided below. The Commissioner is hereby authorized to

charge any insufficient fees or credit any overpayment associated with this application to Deposit Account No. 19-5127 (15772.0009).

Respectfully submitted,

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By: _____

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